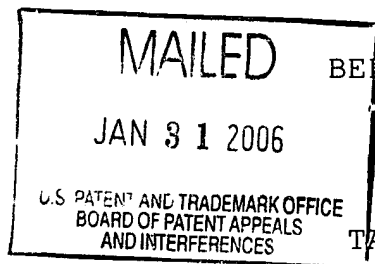


The opinion in support of the decision being entered today was not written for publication in a law journal and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE



BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

Ex parte SHIGETAKA KOBAYASHI,  
TAKESHI YAMADA and MASAKI HANADA

Appeal No. 2006-0364  
Application No. 10/068,400

ON BRIEF

Before KIMLIN, WARREN and KRATZ, Administrative Patent Judges.  
KIMLIN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 25, 32 and 39. Appellants do not appeal the final rejection of claims 22-24, 26-31, 33-38, 40 and 41. Illustrative claim 25 is reproduced below, as is claim 22, upon which claim 25 depends. Also, the examiner has withdrawn the rejection of claims 25, 32 and 39 under 35 U.S.C. § 112, first paragraph.

22. A method of forming a bonded assembly, said method comprising the steps of:

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positioning an IC chip adjacent to a substrate with a thermosetting adhesive between said IC chip and said substrate to adhere said IC chip to said substrate, said substrate comprising an epoxy resin reinforced with fiberglass; and

irradiating said substrate with near infrared light toward said IC chip such that some energy of said light is absorbed by said substrate and some energy of said light passes through said substrate to said adhesive to substantially cure said adhesive.

25. A method as set forth in claim 22 further comprising the step of halting the irradiating step after said adhesive is heated to a predetermined, curing temperature, and after the halting step, cooling said assembly to substantially room temperature and applying pressure on said IC chip toward said substrate during substantially the entirety of said cooling step.

The examiner relies upon the following references as evidence of obviousness:

Uchiyama et al. (Uchiyama)	5,847,796	Dec. 8, 1998
Oxman et al. (Oxman)	6,395,124 B1	May 28, 2002 (filed Jul. 30, 1999)

Appellants' claimed invention is directed to a method of forming a bonded assembly wherein an IC chip is bonded to a substrate with a thermosetting adhesive. The adhesive is heated with near infrared light to curing temperature, and then cooled to room temperature under the application of pressure on the IC chip.

Appealed claims 25, 32 and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Oxman in view of Uchiyama.

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Appellants do not set forth a separate substantive argument with respect to either of the appealed claims 25, 32 or 39. Accordingly, claims 25, 32 and 39 stand or fall together.

We have thoroughly reviewed each of appellants' arguments for patentability. However, we are in complete agreement with the examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the examiner's rejection for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

Appellants do not dispute the examiner's factual determination that Oxman, like appellants, discloses a method for bonding an IC chip to a substrate of reinforced epoxy resin with a thermosetting adhesive wherein the adhesive is cured by irradiating with near infrared energy. As acknowledged by the examiner, Oxman does not teach that pressure is applied to the chip during cooling. However, as explained by the examiner, Uchiyama evidences that it was known in the art to apply pressure to a chip against a circuit board during the cooling step. Accordingly, we agree with the examiner that it would have been

obvious for one of ordinary skill in the art to apply pressure to the chip during cooling in the process of Oxman.

Although Uchiyama, as argued by appellants, discloses that pressure is removed after the temperature reaches 150°C during the cooling process, we concur with the examiner that it would have been a matter of obviousness for one of ordinary skill in the art to maintain the pressure throughout the entirety of the cooling step. It is well settled that when patentability is based upon a change in a process parameter, such as temperature, pressure and concentration, the applicant must demonstrate that the change is critical, i.e., it leads to a new and unexpected result. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Since appellants have not proffered any objective evidence which establishes that maintaining the pressure until room temperature is reached produces an unexpected result, the inference of obviousness established by the prior art remains unrebutted. Also, we agree with the examiner that:

[O]ne skilled in the art would have readily appreciated maintaining the pressure as long as necessary in order to ensure proper adhesion and that such is a function of a variety of factors, such as the material worked upon, the curing properties of the adhesive, the thermal coefficients of expansion of the materials, etc.

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(Page 5 of Answer, penultimate sentence). Again, appellants have not argued, let alone factually demonstrated, that maintaining pressure until room temperature is reached produces an unexpected result.

In conclusion, based on the foregoing and the reasons well-stated by the examiner, the examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a)(1)(iv) (effective Sep. 13, 2004; 69 Fed. Reg. 49960 (Aug. 12, 2004); 1286 Off. Gaz. Pat. Office 21 (Sep. 7, 2004)).

AFFIRMED

Edward C. Kimlin  
EDWARD C. KIMLIN  
Administrative Patent Judge

  
CHARLES F. WARREN  
Administrative Patent Judge

BOARD OF PATENT  
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INTERFERENCES

  
PETER F. KRATZ  
Administrative Patent Judge

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